

III. REMARKS

In the Office Action, objection was made to Claims 1, 6, 11, 16, 18-20, 23, 24 and 26 because of various informalities as set forth in the Office Action. Claim 6 was rejected under 35 U.S.C. 112 as being indefinite for reasons set forth in the Action. Claims 1, 4, 6, 8, 9, 11-13, 20, and 24-27 were rejected under 35 U.S.C. 103 as being unpatentable over Brown (US 5,157,463) in view of Herbert (US 5,352,329), and claims 2, 3, 5, 21 and 22 were rejected under 35 U.S.C. 103 as was claim 1 and further in view of Roy (US 6,118,540), Claims 7, 15 and 16 were rejected under 35 U.S.C. 103 as was claim 1 and further in view of Maeda (US 5,153,444), Claim 10 was rejected under 35 U.S.C. 103 as was claim 8 and further in view of Langley (US Pat. Pub. 2001/0012392), claim 14 was rejected under 35 U.S.C. 103 as was claim 11 and further in view of Lindow (US 4,748,335), Claim 17 was rejected under 35 U.S.C. 103 as was claim 11 and further in view of Nakagawa (US 4,148 ,065), and claims 18, 19 and 23 were rejected under 35 U.S.C. 103 as was claim 11 and further in view of Kanno (US 6,069, 971) for reasons set forth in the Action.

Replacement drawings are being submitted herewith.

In order to overcome the objections raised in Point 2 of the Action, the claims have been amended by adopting the suggestions of the examiner. Claim 6 has been amended for clarity to overcome the rejection under 35 U.S.C. 112.

With respect to the foregoing rejections under 35 U.S.C. 103 based on the cited art, it is noted that the basic ground of rejection is the combination of the teachings of Brown with

Herbert. The following argument is presented to overcome these rejections.

The examiner states in Point 5 of the Action that Brown teaches a system and method providing basic elements of the present invention, such as the illumination source, the camera, and the darker and the lighter pixels, as well as a comparing of a number of dark pixels counted against a total pixel area. However, the situation dealt with by Brown and the teachings of Brown for dealing with his situation differ from the situation dealt with by the present invention and the teachings of the present invention. Brown is concerned with the observation of solder placed on a component lead, and does not deal with the observation of bottom edge wipe for an OPC device. Accordingly, the examiner combines Brown with Herbert who discloses an application of an OPC coating to a substrate of an electrostatalographic imaging member, as well as the removal of a bead of the coating from the imaging member.

It appears to be the position of the examiner that the technique of Brown, for observation of solder on a component lead, can be applied also to the observation of a bead of coating on a component, such as a drum, of an imaging system of Herbert. However, there is no suggestion in either of these two references that the remnants of a partially removed bead of coating on a substrate resembles voids in a coating of solder on a component lead. In fact, there is a strong suggestion in Brown against a combination of these two references. Brown (column 3 at line 63) requires the outputting of statistical data to describe the defect in the solder coating. While Herbert discusses the construction of an electrostatic coating and the removal of a bead of such coating, he provides no

teachings of a technique for observing and evaluating the removal of the bead of coating. The present invention, as claimed, deals with the subject of observing and evaluating the removal of a bead of the coating by use of a digitized image with a gray scale and thresholding.

Since Brown requires a statistical analysis of the defect in a coating of solder, and the present invention calls for use of a digitized image with a gray scale and thresholding for evaluating the quality of removal of a bead of coating from an organic photo conductor device, it must be concluded that the situation of the coating of the OPC device is much different from the situation of the solder coating of Brown. This shows that one cannot combine the teaching of Herbert with the teaching of Brown.

To emphasize his point further, it is noted that Herbert teaches, with respect to the coating of the substrate of a drum for electrostatographic copying machines, that bead formation is undesirable because it interferes with interface separation of components such as charging devices and a developer housing (column 1 at lines 32-39). Herbert does not disclose how one is to examine the bottom edge of the drum after removal of the bead, and does not disclose how one is to evaluate how well the bead has been removed. The evaluation of the removal of the bead is taught by the present invention. In contrast, Brown discusses the visual examination of solder coverage on leads of an electrical component (column 1 at lines 25-28) to insure electrical integrity in the connections of the finished product.

The examiner, by an attempted combination of the teaching of Herbert with the teaching of Brown, is making the assumption

that the evaluation techniques for a solder joint are applicable also for evaluation of bottom edge wipe. It is urged that this assumption is incorrect. In the case of a solder connection, one is concerned with the possibility that solder may crack from vibration or from thermal expansion in the event that the solder does not adequately enclose the component lead, such cracking possibly increasing the electrical resistance of the connection or introducing noise to a signal coupled via the connection. Little pits and voids in the solder coating must be evaluated to determine if their shape and/or size can cause a failure in the solder connection. The statistical analysis of Brown is employed to accomplish the evaluation of the solder connection.

In the situation of the bottom edge wipe, addressed by Herbert and the present invention, one must determine whether a portion of a bead, which has not been fully removed in the bottom edge wipe process, can interfere in the placement of one component relative to another component of the imaging system, such as in the foregoing example of the placement of a drum relative to a housing. In accordance with the principles of the present invention, there is a teaching that one illuminates the bottom edge wipe region of the drum and obtains an image of the region, wherein the image is composed of lighter pixels and darker pixels, and wherein apparatus of the invention determines a ratio of a number of distinguishable pixels to a total number of pixels to evaluate the adequacy of the bottom edge wipe.

It is urged that a knowledge of evaluation of a solder coating on the lead of an electrical component (the situation dealt with by Brown) would be of no use to someone seeking knowledge for the evaluation of the adequacy of the bottom edge wipe, the situation dealt with by the present invention. Furthermore,

Herbert, who discusses bottom edge wipe, does not disclose the evaluation techniques of the present invention, so that a combination of the teachings of Herbert with the teaching of Brown could not suggest the practice of the present invention. Furthermore, as noted in the foregoing argument, knowledge of the solder coating situation of Brown would be of no use to one seeking a way of evaluating the adequacy of the bottom edge wipe. Accordingly, the present argument is believed to overcome the foregoing rejections under 35 U.S.C. 103 so as to obtain allowable subject matter in the claims.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 24-0037.

Respectfully submitted,



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